O. H. M. S.

W. J. Gerald

Deputy Minister.

LABORATORY

OF THE

INLAND REVENUE DEPARTMENT

OTTAWA, CANADA

BULLETIN No. 197

LIME FRUIT JUICE (LIME JUICE)

11204—1

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OTTAWA, January 12, 1910.

W. J. GERALD, ESQ.,
Deputy Minister of Inland Revenue.

SIR,—I have the honour to submit herewith a report upon 76 samples, purchased as lime juice, throughout the different inspectoral districts of Canada in December of 1909 and January, 1910.

The last examination (comprising 27 samples) of lime juice was made in 1902, and the results are published in Bulletin No. 83.

At that time I was supplied with six (6) samples of lime juice, whose genuineness was vouched for by the importers. These samples contained free citric acid averaging 7·74 per cent. A mean content of 7·66 per cent of free citric acid is yielded by the results of analysis of 42 samples of the present collection, which appear to be genuine, except that some may contain small amounts of added water. It would thus seem justifiable to establish at least 7·5 per cent of free citric acid as a normal amount for lime juice. When the article contains decidedly less than this amount, it is reasonable to infer the addition of water; and as the number 7·5 per cent has been deduced from a list of 42 samples, including 13 which show less than 7 per cent citric acid, it cannot be held that the standard suggested is too high.

The present report comprises :—

9	samples,	sold as lime juice cordials.
42	"	judged to be genuine lime juice.
13	"	judged to be abnormal, but are not declared to be adulterated.
12	"	adulterated under the Act.

In the absence of legal limits for density, citric acid content and other definitive characters of lime juice, it is impossible to declare adulteration in the cases of those samples which I have marked 'doubtful.' Where, however, there is addition of matter quite foreign to lime juice, or manifestly added for the purpose of taking the place of some natural constituent of lime juice, the article is clearly adulterated under Section 3 (*a*), (*b*), (*a*). It is not certain that the addition of a dye to *true lime juice* can be held to constitute adulteration; but the addition of a dye to a solution of tartaric acid in water is evidently made for the purpose of concealing inferiority and of enabling the product to be taken for a true lime juice. This constitutes adulteration under Section 3 (*h*).

Guided by the principles laid down, I have to declare twelve (12) samples of the present collection adulterated. Adulteration consists in the addition of tartaric acid as a substitute for citric acid, the natural acid of lime fruit, and in the use of a dye for the purpose of imitating the natural yellow colour of lime juice.

Were the samples in question sold as 'compounds,' they could not be declared adulterated, since Section 24 (*d*) of the Act provides for such articles. But I find nothing on the labels which could inform the purchaser that he was being supplied with anything else than the genuine juice of the lime fruit, and our inspectors have invoiced these samples as sold to them for lime juice.

In the case of thirteen (13) other samples I have used the word 'doubtful.' It will be readily understood that this word implies some standard of reference. The most important characteristic of the juice of the lime fruit is the presence of citric acid, associated with a natural fruit flavour, which gives palatability to the article as a beverage. The simplest form of adulteration is evidently the addition of water to the juice This would have the effect of lowering the specific gravity (density), and of reducing the percentage of contained citric acid. In order to determine whether or not water has been added, it is necessary to establish the normal density of lime juice and to ascertain the normal percentage content of citric acid therein; also to determine the variations from such normal which may be exhibited by genuine lime fruit juice. Another character of lime fruit juice is its optical activity, and in the subjoined table I have brought together the results of recorded work upon samples believed to be genuine

No.	Specific Gravity.			Citric Acid.			Optical rotation in 2 dm tube.	Number of Samples.
	Maximum.	Minimum.	Mean.	Maximum.	Minimum.	Mean.		
1	1·0398	1·0363	1·0381	8·12	7·35	7·74	+0°.0	6
2	1·0389	1·0265	1·0348	7·68	6·61	7·20	.....	5
3	.....	.....	1·0343	7·84	6·36	7·12	−0°.3	4
4	1 0403	1·0266	1·0331	8·82	6·02	7·66	−0°.5 to +0°.5	42
	Means ...	.....	1·0339	.....	... .	7·57	.....	57

1. From examination of 6 samples, Bull. 83, p. 17.
2. " " 5 " König, Nahrungs und Genussmittel, Bd. I, p. 887.
3. " " 4 " " " " " p. 1504.
   It is not certain that the numbers quoted refer to lime juice proper, and not to lemon juice.
4. From examination of 42 samples, reported in this Bulletin and probably genuine, but not guaranteed as such.

An examination of the tabulated results of analysis, and their comparison with the above means, will show the grounds upon which I have felt justified in declaring thirteen (13) samples to be of doubtful genuineness.

The standards for lime juice issued by the Bunde Deutscher Nahrungsmittel-Fabrikanten und Händler (Deutsches Nahrungsmittelbuch: Zweite Auflage) in 1909, recognize (page 286) a first pressed juice (Muttersaft) and a second pressed juice (Nachpresse). This second pressing is the result of addition of water to the residue left from a first pressing of the fruit, and the product is necessarily a very inferior article. When the product of a second pressing is added to the first pressed juice it is required that the fact should be distinctly stated upon the label and that the article be sold as a mixture (Fruchtsaft mit Nachpresse). It may be that the low grade lime juice samples which I have characterized as doubtful are mixtures of the kind indicated. If such is the case, they should undoubtedly be plainly labelled in conformity with the facts.

Lime Fruit Juice Cordials, or Lime Juice Cordials.

Nine samples are labelled as *Cordials*. This term is apparently applied to a diluted and sweetened lime juice, and a lime juice cordial differs from plain lime juice merely by the addition of water and sugar. The amount of water added varies much in different brands; and for the nine samples now reported, the extremes are about 43 per cent, and 81 per cent, calculated from the citric acid content. The amount of sugar added varies from about 20 per cent to over 50 per cent.

Since the lime juice is the characteristic component of these articles, it is evident that their value varies greatly, and the following conspectus is of interest :—

Sample.	Specific Gravity.	Citric Acid.	Added Water.	Approximate sugar added.
36695	1·1062	3·57	53·	20
38888	1·0984	1·43	81·	20
40383	1·1206	2·17	71·	25 (Glucose).
42868	1·2788	3·92	49·	50 (No preservatives).
42785	1·2301	2·87	62·	45
30872	1·2896	3·67	52·	50 (No preservatives).
44709	1·2351	4·34	43·	45 (No preservatives).
37801	1·1392	2·72	64·	30
40381	1·0168	7·00	8·	0 (No preservatives).

With four exceptions, these articles contain salicylic acid as a preservative. No mention of this fact is made on the label. Number 40381 is exceptional among these cordials in containing a high percentage of citric acid, very little added water, no sugar, and 7·27 per cent of alcohol equivalent to 15·85 per cent of proof spirit. This article is legally saleable only as a drug, or as an alcoholic beverage.

I beg to recommend the publication of this report as Bulletin No. 197.

I have the honour to be, Sir,

Your obedient servant,

A. McGILL,
Chief Analyst.

Date of Collection.	Nature of Sample.	Number of Sample.	Name and Address of Vendor.	Quantity.	Cost.	Name and Address of Manufacturer or Furnisher as given by the Vendor.	Inspector's Report (Is not an expression of opinion.)
					$ c.		
DISTRICT OF NOVA SCOTIA—							
1909.							
Dec. 7	Bottled Lime Juice.	41760	R. B. Adams & Co., Halifax, N.S.	3 bots.	0 30	Dominion Syrup Co., Halifax, N.S.	Labelled pure.....
" 6	" ..	41761	National Drug Co., Halifax, N.S.	" .	0 25	Vendors.....	Sovereign Brand..
" 7	" ..	41762	Wentzells, Ltd., Halifax, N.S.	" .	0 30	Croskill & Co., Halifax, N.S.	West India.....
" 8	" ..	41763	G. A. Cook & Co., Halifax, N.S.	" .	0 30	Unknown.....	" .....
" 15	" ..	41764	B. O. Bishop, Dartmouth, N.S.	" .	0 30	Nat. Drug & Chem. Co., Halifax, N.S.	Sovereign Brand..
DISTRICT OF PRINCE EDWARD ISLAND—							
Dec. 7	Bottled Lime Juice.	38611	A. B. Paquet, Souris.	3 pts..	0 45	Frances Drake, New Glasgow, N.S.	.. ..
" 7	" ..	38612	Vincent McIsaac " .	" .	0 45	Bauld Bros., Ltd., Halifax, N.S.	Pure West India Lime Juice.
" 8	" ..	38613	H. Connolly, Charlottetown.	" .	0 45	Sussex Mineral Spr'g Co., Sussex, N.B.	Extra fine West India Lime Juice.
" 10	" ..	38614	R. T. Holman, Ltd., Summerside.	" .	0 45	National Drug Co., Halifax.	Sovereign Lime Juice.
" 10	" ..	38615	Sinclair & Stewart, Summerside.	" .	0 45	Havelock Mineral Spring Co., Havelock, N.S.	.....
DISTRICT OF NEW BRUNSWICK—							
Dec. 2	Bottled Lime Juice.	39623	The National Drug & Chemical Co., Ltd., St. John, N.B.	3 bots.	0 30	J. Cox Fillan, Dominica, W. I.	Received in bulk. Bottled by vendors.
" 14	" ..	39624	R. T. Mack, Fredericton, N.B.	" .	0 40	Nat. Drug & Chem. Co., Montreal.	West India Lime Juice. Received in bulk. Bottled by vendors.
" 16	" ..	39625	Geo. F. Crawford, St. Stephen, N.B.	" .	0 40	Can. Drug Co., Ltd. St, John, N.B.	Pure West India Lime Juice.
1910. Jan. 5	" ..	39626	Fairweather Bros., Moncton.	" .	0 50	Nat. Drug & Chem. Co,, Ltd., Montreal.	"Montserrat"....
" 5	" ..	39627	J. McD. Cooke, Moncton.	" .	0 35	Nat. Drug & Chem. Co., Ltd., Toronto.	"Sovereign".....
DISTRICT OF QUEBEC—							
Dec. 10	Bottled Lime Juice.	36692	W. G. Doyle, West Frenton.	3 bots.	1 35	Whitead & Turner, Quebec.	.....
" 10	" ..	36693	Lacasse & Audet, St. Edouard Frenton.	"	0 75	N. Turcotte & Cie, Quebec.	....
" 22	" ..	36694	J. Masson, 808 Rue St Valier.	" .	0 75	National Drug Co., Montreal.	....
" 22	" ..	36695	Jos. Falardeau, 271 Rue St. Joseph.	" .	0 75	L. B. Renaud & Cie., Quebec.	....
" 22	" ..	36696	" " ..	" .	1 05	J. A. Chabot, Quebec.	.. ..

LIME JUICE.

Results of Analysis.						Number of Sample.	Remarks and Opinion of the Chief Analyst.
Specific Gravity at 15°C.	Acidity per 100 CC. in terms of CCh.	Per cent weight in Vol.-Acidity calculated as citric acid.	Rotation in 2 drm. tube.	Preservatives.	Reaction with alcohol (after evaporation to a Syrup.)		
R. J. WAUGH, INSPECTOR.							
		p. c.					
1·0290	80·5	5 63	0·0	Salicylic acid present.	Bulky ppte..	41760	Low in acidity and contains a preservative.
1·0344	112·0	7·84	0·0	Salicylic acid trace.	" ..	41761	Genuine with trace of a preservative.
1·0313	98·5	6·89	—0·4	Salicylic acid present.	" ..	41762	Genuine but contains a preservative.
1·0294	90·0	6·30	—0·2	Salicylic acid trace.	" ..	41763	Genuine with a trace of preservative.
1·0340	108·0	7·56	—0·4	Salicylic acid present.	" ..	41764	Genuine but contains a preservative.
THEO. MOORE, INSPECTOR.							
1·0220	67·5	4·72	+1·5	Salicylic acid present.	Bulky ppte..	38611	Contains tartaric acid. Adulterated.
1·0328	102 5	7·17	0·0	" ..	" ..	38612	Genuine but contains a preservative.
1·0364	116·0	8·12	—0·4	Salicylic acid trace.	" ..	38613	Genuine but with a preservative added.
1·0345	111·5	7·80	0·0	Salicylic acid present.	" ..	38614	Genuine with a preservative.
1·0403	125·0	8·75	0·0	" ..	" ..	38615	Genuine but contains a preservative.
J. C. FERGUSON, INSPECTOR.							
1·0398	123·0	8·61	—0·5	None	Bulky ppte..	39623	Genuine.
1·0364	115·5	8·08	—0·4	"	" ..	39624	"
1·0390	126·0	8·82	0·0	Salicylic acid present.	" ..	39625	Genuine but contains a preservative.
1·0348	114·0	7·98	0·0	None.....	" ..	39626	Genuine.
1·0346	111·0	7·77	—0·5	"	" ..	39627	"
E. BELAND, INSPECTOR.							
1·0347	114·5	8·01	—0·1	None.....	Bulky ppte..	36692	Genuine.
1·0287	90·0	6 30	—0·2	"	" ..	36693	"
1·0296	93·5	6·54	—0·3	"	" ..	36694	"
1·1062	51·0	3·57	—27·8	Salicylic acid present.	Ppte. below normal.	36695	Rotation after inversion —27·8. Contains a yellow dye (small amount). Sold as a cordial.
1·0348	111·0	7·77	0·0	None.....	Bulky ppte..	36696	Genuine.

Date of Collection.	Nature of Sample.	Number of Sample.	Name and Address of Vendor.	Quantity.	Cost.	Name and Address of Manufacturer or Furnisher as given by the Vendor.	Inspector's Report. (is not an expression of opinion.)
					$ c.		
DISTRICT OF ST. HYACINTHE—							
1909.							
Dec. 7	Bottled Lime Juice.	38884	Pharm. Larochelle, Sorel.	3 Bots	75	Nat. Drug & Chem. Co, Ltd, of Canada	"Sovereign" Brand
" 10	" ..	38885	A. Foisy, St. Jean...	"	1.20	L. Chaput fils & Cie, Montreal.	"Montserrat.".....
" 21	" ..	38886	A. H. Moore & Co., Magog.	"	75	Nat. Drug & Chem. Co, Ltd, of Canada	"Sovereign." .....
" 21	" ..	38887	L. H. Oliver, Sherbrooke.	"	1.05	" ..	"Montserrat.".....
" 23	" ..	38888	Thos. Hebert, St. Hyacinthe.	"	75	Robt. Simpson & Co., Montreal.	"Montebello.".....
DISTRICT OF MONTREAL—							
Dec. 3	Bottled Lime Juice.	40381	Jno. T. Lyons, Co. Incorp. 8 Bleury St., Montreal.	3 Bots	38	Riolleti & Co., St. Thomas.	Lime Juice Cordial
" 4	" ..	40382	St. Lawrence Grocery Co., 395 St. Lawrence B., Montreal.	"	75	T. A. Lyttle Co., Toronto.	"Sterling.".....
" 4	" ..	40383	R. Blain, 8 Guilbault St., Montreal.	"	60	Sutcliffe & Bingham, Ltd., Manchester.	"K. Kovat.".....
" 4	" ..	40384	Nat. Drug & Chem. Co., Ltd., 31 Gabriel St., Montreal.	"	65	Nat. Drug & Chem. Co., Ltd.	"Sovereign." .....
" 4	" ..	40385	Lyman's, Ltd., St. Paul St., Montreal.	"	66	Lyman's, Ltd., Montreal.	Dominica.....
DISTRICT OF OTTAWA—							
Dec. 6	Bottled Lime Juice.	42866	R. E. Powell, Ottawa.	3 Bots	75	T. A. Lyttle Co., Ltd., Toronto.	"Sterling.".....
" 10	" ..	42867	Gloucester Trading Co., Ottawa.	"	1.05	H. N. Bate & Sons, Ottawa.	"Montserrat.".....
" 10	" ..	42868	S. J. Major, Ltd., Ottawa.	"	25	Nat. Drug & Chem. Co., Ltd., Halifax.	Sovereign Lime Juice Cordial.
" 14	" ..	42869	C. A. Adams, Kemptville.	"	1.05	Turner & Co. Toronto.	Turner's Lime Fruit Juice.
" 17	" ..	42870	G. A. Aiken, Finch..	"	75	T. W. Chamberlain, Prescott.	Labelled Lime Fruit Juice, full strength.
" 17	" ..	42894	P. Lamoureux, Ottawa.	"	75	Unknown.....	'Sterling.".....

JUICE—*Continued.*

Results of Analysis.						Number of Sample.	Remarks and Opinion of the Chief Analyst.
Specific Gravity at 15°C.	Acidity per 100 CC in terms of CO_2.	Per cent weight in Vol.-Acidity calculated as citric acid.	Rotation in 2 drm. tube.	Preservatives.	Reaction with alcohol (after evaporation to a Syrup.)		
J. C. ROULEAU, INSPECTOR.							
		p.c.					
1·0292	93·0	6·51	—0·2	None	Bulky ppte.	38884	Genuine.
1·0350	114·0	7·98	—0·4	"	" ..	38885	"
1·0276	87·5	6·12	—0·2	"	" ..	38886	"
1·0360	118·0	8·26	0·0	"	" ..	38887	"
1·0984	20·5	1·43	—27·5	Salicylic acid present.	Very slight ppte.	38888	Rotation after inversion —27·8. Contains considerable sugar. Sold as a cordial. Contains a preservative.
J. J. COSTIGAN, INSPECTOR.							
1·0168	100·0	7·00	0·0	None	Very slight ppte. after stirring.	40381	Contains 15·85 p.c. proof spirits. Sold as a cordial.
1·0175	60·5	4·23	+ 0·8	"	No ppte....	40382	Rotation after neutralizing +2·6. Contains a yellow aniline dye. Artificial and contains tartaric acid. Adulterated
1·1206	31·0	2·17	+23·0	Salicylic acid trace.	Bulky ppte.	40383	Invert rotation +22·4. Contains considerable glucose. Sold as a cordial. Contains glucose and a preservative.
1·0266	86·0	6·02	— 0·2	None	" ..	40384	Genuine.
1·0285	98·0	6·86	0·0	"	" ..	40385	"
J. A. RICKEY, INSPECTOR.							
1·0222	66·0	4·62	+ 3·5	None	Bulky ppte.	42866	Rotation after neutralizing +8·6. Contains a yellow aniline dye. Artificial and contains tartaric acid. Adulterated
1·0348	114·0	7·98	— 0·2	"	" ..	42867	Genuine.
1·2788	56·0	3·92	—77·6	"	" ..	42868	Rotation after inversion —76·4. Contains a large amount of sugar. Sold as a cordial.
1·0422	80·0	5·60	— 3·8	Salicylic acid present.	Slight ppte.	42869	Rotation after neutralization —0·2. Contains a yellow aniline dye and tartaric acid. Is artificial. Adulterated.
1·0185	61·0	4·27	+ 3·7	" ..	No ppte....	42870	Rotation after neutralizing +11·4. Contains a yellow aniline dye (strongly dyed) and tartaric acid. Is artificial. Adulterated.
1·0231	68 0	4·76	+ 3·9	None	" ..	42894	Rotation after neutralization +11·6. Contains a yellow aniline dye and tartaric acid. Is artificial. Adulterated.

BOTTLED LIME

Date of Collection.	Nature of Sample.	Number of Sample.	Name and Address of Vendor.	Quantity.	Cost.	Name and Address of Manufacturer or Furnisher as given by the Vendor.	Inspector's Report. (Is not an expression of opinion.)
					$ c.		
DISTRICT OF KINGSTON—							
1909							
Nov. 29	Bottled Lime Juice.	42782	Nat. Drug Co., Kingston.	3 Bots	1.00	Evans Sons, Lescher & Webb, Liverpool & London.	....
" 29	" ..	42783	A. P. Chown, Kingston.	"	75	Nat Drug Co.....	....
" 29	" ..	42784	C. S. Prouse, Kingston.	"	75	"	.....
" 29	" ..	42785	G. Mahood, Kingston	"	1.05	Batger & Co., London.	.....
" 29	" ..	42786	W. W. Gibson, Kingston.	"	75	Nat. Drug Co.....	.....
DISTRICT OF TORONTO—							
Dec. 3	Bottled Lime Juice.	41441	H. G. Ainslie, Owen Sound.	3 bots.	0 60	The T. A. Lytle Co., Ltd., Toronto.	"Sterling". .....
" 7	" .	41442	J. S. O'Neal, Welland	" .	0 75	Alex. Riddle & Co., Ltd., London.	Stower's pure Lime Juice. Genuine as squeezed from the fruit.
" 16	" ..	41443	J. T. Festing, St. Catherines.	" .	0 25	T. A. Lytle & Co., Toronto.	"Sterling".....
" 17	" ..	41444	W. J. O'Brien, Hamilton.	" .	0 30	Unknown.	.....
" 22	" ..	41445	M. Austin, Toronto Junction.	" .	0 45	Lyman Bros. & Co., Ltd., Toronto.	"Crown".....
DISTRICT OF LONDON—							
Dec. 6	Bottled Lime Juice.	30871	R. Wiler & Co., Guelph	3 bots.	0 30	Simpson Bros., Guelph.	... .
" 7	" ..	30872	Jackson & Son, "	" .	0 75	Simpson Bros. & Co., Halifax.	....
" 9	" ..	30883	Edward Flaherty, Stratford.	" .	0 75	Taylor & Pringle, Owen Sound.	.....
" 21	" ..	44709	W. R. Butcher, St. Mary's.	" .	0 30	Elliot Mar & Co., London.	.....
1910.							
Jan. 5	" ..	44712	Jno. Levenston, Listowel.	" .	0 75	Nat. Drug Co., Toronto.	.....

JUICE—*Continued.*

Results of Analysis.						Number of Sample.	Remarks and Opinion of the Chief Analyst.
Specific Gravity at 15°C.	Acidity per 100 CC in terms of CCn.	Per cent weight in Vol.-Acidity calculated as citric acid.	Rotation in 2 drm. tube.	Preservatives.	Reaction with alcohol (after evaporation to a Syrup.)		
JAS. HOGAN, INSPECTOR.							
		p.c.					
1·0350	112·0	7·84	— 0·5	None	Bulky ppte.	42782	Genuine.
1·0344	111·0	7·77	0·0	Salicylic acid trace.	"	42783	Genuine with trace of a preservative.
1·0278	88·0	6·16	— 0·4	None	"	42784	Genuine.
1·2301	41·0	2·87	—67·8	Salicylic acid present.	Slight ppte.	42785	Contains a large amount of sugar. Invert rotation —70·0. Sold as a cordial. Contains a preservative.
1·0295	93·0	6·51	— 0·4	None	Bulky ppte.	42786	Genuine.
H. J. DAGER, INSPECTOR.							
1·0232	66·0	4·62	+3·6	None	Bulky ppte.	41441	Rotation after neutralizing +8·8. Artificial and contains tartaric acid. Adulterated.
1·0340	106·5	7·45	—0·3	Salicylic acid present.	"	41442	Genuine but contains a preservative.
1·0188	56·0	3·92	+3·3	None	No ppte.	41443	Rotation after neutralizing +10·0. Contains a yellow aniline dye and tartaric acid. Is artificial. Adulterated.
1·0316	100·0	7·00	0·0	Salicylic acid trace.	Bulky ppte.	41444	Genuine but contains a preservative.
1·0273	81·0	5·67	+0·5	Salicylic acid present.	"	41445	Abnormal and contains a preservative. Doubtful.
T. KIDD, INSPECTOR.							
1·0349	112·5	7·87	+0·7	Salicylic acid trace.	Bulky ppte.	30871	Abnormal rotation and contains a trace of a preservative.
1·2896	52·5	3·67	—85·4	None	Slight ppte.	30872	Contains a large amount of sugar. Invert rotation —90·8. Sold as a cordial.
1·0311	96·0	6·72	+6·2	"	No ppte.	30883	Rotation after neutralizing +17·8. Contains aniline dye and tartaric acid. Is artificial. Adulterated.
1·2351	62·0	4·34	—66·8	"		44709	Rotation after inversion —65·6. Contains a large amount of sugar. Sold as a cordial.
1·0262	83·5	5·84	—0·3	"		44712	Doubtful.

Date of Collection.	Nature of Sample.	No. of Sample.	Name and Address of Vendor.	Quantity.	Cost.	Name and Address of Manufacturer or Furnisher as given by the Vendor.	Inspector's Report. (Is not an expression of opinion.)
					$ c.		
DISTRICT OF WINDSOR—							
1909							
Dec. 9	Bottled Lime Juice.	42683	J. T. Wallace, Brantford.	3 bots.	0 90	C. F. Sutton, Sons & Co., London, Eng.	.....
" 10	" ..	42685	Ryan & Russell, London.	" .	0 75	T. A. Lytle Co., Toronto.	"Sterling". .....
" 10	" ..	42688	Jno. Diprose, London	" .	1 05	Montserrat Co., Liverpool and London, Eng.	.....
" 10	" ..	43693	T. A. Rowat & Co., London.	" .	0 90	G. F. Sutton, Sons & Co., London, Eng.	.....
" 10	" ..	42694	A. McCormick & Son, London.	" .	0 45	T. A. Lytle & Co., Toronto.	Labelled "Lime Fruit Juice."
DISTRICT OF MANITOBA—							
Dec. 9	Bottled Lime Juice.	39831	C. Hoffman & Son, Winnipeg.	3 bots.	0 75	The Blackwoods, Ltd., Winnipeg.	Blackwood's Lime Fruit Juice.
" 10	" ..	39832	A. Hendry, Winnipeg	" .	0 75	Campbell Bros. & Wilson, Winnipeg and Calgary.	"Royal Shield"...
" 10	" ..	39833	J. D. Slov, Winnipeg	" .	0 75	Unknown.	"Imperial" .....
" 13	" ..	39834	S. W. Elliott & Co., Winnipeg.	" .	0 75	The Blackwoods, Ltd., Winnipeg.	Blackwood's Lime Fruit Juice.
" 16	" ..	39835	P. Nelson, Winnipeg.	" .	0 50	Western Mfg. Co., Winnipeg.	"Maple Leaf"...
DISTRICT OF CALGARY—							
Dec. 14	Bottled Lime Juice.	43636	Bole Drug Co., Ltd., Calgary.	3 bots.	1 50	Nat. Drug & Chem. Co., Toronto.	.....
" 14	" ..	43637	L. T. Mewburn & Co., Ltd., Calgary.	"	1 20	Montserrat Co., Island of Montserrat	.....
" 14	" ..	43638	Calgary Milling Co., Calgary.	"	1 50	The W. H. Malkin Co., Ltd., Vancouver.	.....
" 14	" ..	43639	Calgary Wine & Spirit Co., Calgary.	"	0 75	Taylor & Pringle Co, Owen S...	.....
" 14	" ..	43640	Campbell, Wilson & Horne Co., Ltd.	"	0 80		.....

JUICE—*Continued.*

Results of Analysis.						Number of Sample.	Remarks and Opinion of the Chief Analyst.
Specific Gravity at 15°C.	Acidity per 100 CC in terms of CO_2.	Per cent weight in Vol.-Acidity calculated as citric acid.	Rotation in 2 drm. tube.	Preservatives.	Reaction with alcohol (after evaporation to a Syrup.)		
JNO. TALBOT, INSPECTOR.							
		p. c.					
1·0306	86·5	6·05	—1·1	Salicylic acid trace.	Bulky ppte.	42683	Abnormal rotation and contains a trace of a preservative.
1·0160	58·5	4·08	+0·2	None	Slight ppte.	42685	Rotation after neutralizing +0·4. Contains a yellow aniline dye. Is artificial. Low in acidity and otherwise doubtful.
1·0365	116·5	8·15	—0·3	"	Bulky ppte.	42688	Genuine.
1·0287	90·5	6·33	—0·2	"	" ..	42693	Genuine.
1·0188	55·5	3·88	+3·2	"	Slight ppte.	42694	Rotation after neutralizing +9·0. Contains a yellow aniline dye and tartaric acid. Is artificial. Adulterated.
A. C. LARIVIERE, INSPECTOR.							
1·0308	91·0	6·37	+0·5	None	Bulky ppte.	39831	Genuine.
1·0236	74·5	5·21	+0·4	Salicylic acid present.	" ..	39832	Acidity low and contains a preservative. Doubtful.
1·0255	80·0	5·60	0·0	" ..	" ..	39833	Acidity low and contains a preservative.
1·0341	108·0	7·56	+0·5	Salicylic acid trace.	" ..	39834	Genuine, with a trace of preservative.
1·0313	107 5	7.52	0·0	Salicylic acid present.	ppte. below normal.	39835	Genuine but contains a preservative.
R. W. FLETCHER, INSPECTOR.							
1·0284	0	6·37	—0·1	None	Bulky ppte.	43636	Genuine.
1·0344	113·5	7·94	—0·3	"	" ..	43637	"
1·0333	108·5	7·59	—0 2	"	" ..	43638	"
1·0388	116·5	8·15	+7·5	"	No ppte....	43639	Rotation after neutralizing +21·0. Contains a yellow aniline dye and tartaric acid is artificial. Adulterated.
1·0282	84·0	5·88	+	alicylic acid present.	"	43640	Rotation after neutralizing +16·4. Contains a yellow aniline dye and tartaric acid is artificial. Adulterated.

Date of Collection.	Nature of Sample.	Number of Sample.	Name and Address of Vendor.	Quantity.	Cent.	Name and Address of Manufacturer or Furnisher as given by the Vendor.	Inspector's Report. (Is not an expression of opinion.)
					$ c.		
DISTRICT OF VANCOUVER—							
1909.							
Dec. 13	Bottled Lime Juice.	37798	Kelly, Douglas & Co., Vancouver.	3 pts.	0 75	Vendors.....	"Nabob" Pure Lime Fruit Juice
" 13	" ..	37799	Hudson Bay Co., Vancouver.	"	1 05	Kops Breweries.....	Made from the finest Lime Juice. Special quality West India Lime Juice.
" 14	" ..	37800	W. H. Malkin Co., Ltd., Vancouver.	"	0 90	L. Rose & Co., Ltd..	Is entirely free from alcohol.
" 14	" ..	37801	W. J. McMillan & Co. Vancouver.	"	0 90	Albert Riddell & Co.	Prepar'd from their original Lime Juice Syrup Receipt. This cordial m'f'd. from pure juice of fruit free from alcohol.
" 14	" ..	37802	A. & C. Grocery.....	"	0 90	Nat. Drug Co., Vancouver.	"Sovereign".....
DISTRICT OF VICTORIA—							
Dec. 10	Bottled Lime Juice.	41604	W. Speed.....	3 bots.	0 75	Simon Leiser & Co., Ltd., Victoria, B.C.	"Royal" West India Lime Juice.
" 10	" ..	41605	The Saunders Grocery Co., Ltd.	"	1 20	Evans Sons, Lescher & Webb, Ltd., London, Eng.	Montserrat Lime Fruit Juice.
" 14	" ..	41606	Copas & Young.....	"	0 60	H. Moss, Victoria, B.C.	"Royal" West India Lime Juice.
" 14	" ..	41607	D. H. Ross & Co., Victoria, B.C.	"	0 75	Law, Young & Co., Montreal.	....
" 14	" ..	41608	R. Erskine & Co., Victoria, B.C.	"	0 75	The West India Lime Co., St. Thomas, W.I.	Finest West India Lime Juice.

JUICE—*Concluded.*

Results of Analysis.						Number of Sample.	Remarks and Opinion of the Chief Analyst.
Specific Gravity at 15°C.	Acidity per 100 CC in terms of CCa.	Per cent weight in Nol.-Acidity calculated as citric acid.	Rotation in 2 drm. tube.	Preservatives.	Reaction with alcohol (after evaporating to a Syrup.)		
J. F. POWER, INSPECTOR.							
		p. c.					
1·0359	117·0	8·19	—0·3	None	Bulky ppte..	37798	Genuine.
1·0336	108·0	7·56	0·0	"	" ..	37799	"
1·0236	80·5	5·63	+0·2	"	" ..	37800	Low in acidity.
1·1392	37·5	2·72	—36·5	Salicylic acid present.	Slight ppte .	37801	Rotation after inversion —35·0. Contains considerable sugar. Sold as a cordial.
1·0350	112·0	[illegible]	+0·9	None	Bulky ppte..	37802	Abnormal rotation.
[illegible]NSPECTOR.							
				[illegible]ne	Bulky ppte..	41604	Rotation abnormal.
				.....	" ..	41605	Genuine.
					" ..	41606	Rotation abnormal.
				....	" ..	41607	Genuine.
				acid [illegible]ace.	" ..	41608	Low in acidity, and contains a trace of preservative.

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